## What is claimed is:

- 1. A pair of FRET hybridization probes hybridizing adjacently to a target nucleic acid sequence, a first member of said pair of hybridization probes comprising:
  - a nucleotide sequence entity which is substantially complementary to the sequence of the target nucleic acid;
  - a fluorescent entity, said entity being either a FRET donor entity or a FRET acceptor entity; and
- a spacer entity connecting said nucleotide sequence entity and said fluorescent entity, said spacer entity comprising a connecting chain of at least 15 atoms, wherein 2 atoms of said connecting chain of at least 15 atoms comprise negatively charged substituents.
- 2. A pair of FRET hybridization probes according to Claim 1, wherein said spacer entity comprises between 1-10 A, T, or C nucleotide residues having a sequence non-complementary to the target DNA.
- 3. A pair of FRET hybridization probes hybridizing adjacently to a target nucleic acid sequence, comprising
- a first member of said pair of FRET hybridization probes comprising:
  - a nucleotide sequence entity which is substantially complementary to the sequence of the target nucleic acid;
  - a fluorescent entity, said entity being a FRET donor entity;
  - a first spacer entity connecting said nucleotide sequence entity and said first fluorescent entity;
- a second member of said pair of FRET hybridization probes comprising
  - a nucleotide sequence entity which is substantially complementary to the sequence of the target nucleic acid;
  - a second fluorescent entity, said second fluorescent entity being a FRET acceptor entity;
  - a second spacer entity connecting said nucleotide sequence entity and said fluorescent entity, said second spacer entity being different from said first spacer entity;

wherein the length of said first spacer entity and the length of said second spacer entity differ in size at least by a connecting chain of 15 atoms.

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- 4. A pair of FRET hybridization probes hybridizing adjacently to a target nucleic acid sequence comprising:
- a the first member of said pair of FRET hybridization probes comprising:
  - a nucleotide sequence entity which is substantially complementary to the sequence of the target nucleic acid;
  - a fluorescent entity, said entity being a FRET donor entity;
  - a spacer entity connecting said nucleotide sequence entity and said fluorescent entity, said spacer entity comprising a number of n1=1-15 nucleotide residues non-complementary to the target DNA;

the second member of said pair of FRET hybridization probes comprising:

- a nucleotide sequence entity which is substantially complementary to the sequence of the target nucleic acid;
- a fluorescent entity, said entity being a FRET acceptor entity;
- a spacer entity connecting said nucleotide sequence entity and said fluorescent entity, said spacer entity comprising a number of n2=1-15 nucleotide residues non-complementary to the target DNA;

wherein the value of n1 differs from the value of n2 by a natural number between 1 and 10.

- 5. A set of at least three oligonucleotides, comprising:
- a first oligonucleotide and a second oligonucleotide, said first oligonucleotide and said second oligonucleotide being capable of acting as a pair of amplification primers for a template dependent nucleic acid amplification reaction, each of said first oligonucleotide and said third oligonucleotide being labeled with one corresponding member of a FRET pair consisting of a FRET donor entity and a FRET acceptor entity;

one of said first said oligonucleotide or said third oligonucleotide comprising:

- a nucleotide sequence entity which is substantially complementary to the sequence of the target nucleic acid;
- a fluorescent entity, said entity being either the FRET donor entity or the FRET acceptor entity;
- a spacer entity connecting said nucleotide sequence entity and said fluorescent entity;

wherein said spacer entity comprises a connecting chain of at least 15 atoms.

6. A composition comprising a nucleic acid sample and a pair of hybridization probes according to any of Claims 1-5.

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- 7. A kit comprising hybridization probes according to any of Claims 1-5 and at least one other component selected from a group consisting of nucleic acid amplification primers, template dependent nucleic acid polymerase, deoxynucleoside triphosphates and a buffer for template dependent nucleic acid amplification reaction.
- 8. A method for detection of a nucleic acid sequence in a biological sample, comprising hybridizing a nucleic acid present in said sample with hybridization probes according to any of Claims 1-5, and detecting an emission from said hybridization probes.
- 9. A method according to Claim 8, further comprising amplifying a part of said nucleic acid present in said sample, wherein a target nucleic acid sequence substantially complementary to the sequences of said hybridization probes is amplified by a nucleic acid amplification reaction.
- 10. A method according to Claim 9, wherein fluorescence emission of at least one hybridization probe is monitored in real time.
- 11. A method for the determination of the melting profile of a hybrid consisting of a target nucleic acid and hybridization probes according to any of Claims 1-5, wherein the fluorescence emission is determined as a function of temperature.
- 12. A method for chemical solid phase synthesis of multiple oligonucleotides comprising:
  - a) preparation of a dye labeled CPG- (N)n, wherein
    N is arbitrarily chosen nucleotide residues different from G, and n=1-10;
  - b) performing a first solid phase synthesis of a first oligonucleotide having a first sequence using the CPG prepared in step a); and
  - c) performing a second solid phase synthesis of at least a second oligonucleotide having a second sequence using the CPG prepared in step a).